REMARKS/ARGUMENTS

This amendment is submitted in response to the Office action mailed November 12, 2009. Claims 1, 10 and 21 have been amended. Claims 3-4, 16-20, 23-24 and 29-32 are cancelled. Claims 9-15 and 28 are withdrawn from consideration. Accordingly, claims 1, 2, 5-8, 21, 22, 25-27 and 33-40 are presented for examination.

On pages 2-4 of the Office action, claims 1, 7-8, 21, 27, 29-30, 35-36, and 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Mehdian. On pages 4-5, claims 5 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehdian in view of Harms. On pages 5-6, claims 6 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehdian in view of Hall. On pages 6-7, claims 33-34 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehdian in view of Jackson. On page 7, claims 2, 22 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehdian in view of German Patent DE29810798. Applicant respectfully traverses the rejections.

On page 8 of the Office action, the Examiner states that the term "undercut" does not necessarily require an overhanging part and that the hollowed out portion beneath the threaded region of the Mehdian reference meets this definition. Applicant respectfully submits that the hollowed out portion identified by the Examiner cannot reasonably be considered an "undercut," as recited in claims 1 and 21.

During patent examination, claims are given their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. MPEP 2111. The specification of the present application is clear that the hollowed out portion between the legs 5, 6 is simply a recess 3 to receive the rod 100. The undercut 9 requires a further step of cutting into the legs 5, 6.

The specification fully supports this meaning of the term "undercut." See, e.g., page 5, lines 7-9. All figures require more than just a hollowed out portion as suggested by the Examiner. See reference lines 9, 14, 33, and 34. In addition, the specification gives an example of "no" undercut on page 6, lines 28-32. In this embodiment, where an external undercut is

provided, there is no internal undercut, but there still is required a hollowed out portion, such as recess 3, between the legs for the rod.

Applicant respectfully submits that the specification and drawings are sufficiently clear that there is no need to refer to extrinsic evidence, such as the on-line *Encarta World English Dictionary* cited by the Examiner. Furthermore, the definition relied upon by the Examiner is not pertinent to the present art. The *Encarta* definition is taken out of context and is not understandable in connection with the present art. In particular, it is not clear what is meant by "a cut below another cut" as it applies to the present invention or to the Mehdian reference. The *Encarta* definition also refers to an undercut as "a cut made ... into the lower part of something." But, Mehdian does not teach such an undercut, i.e., there is no undercut "on an inner surface of the legs" as recited in claims 1 and 21. Accordingly, claims 1 and 21 are believed to be patentable over Mehdian.

Applicant submits herewith two other extrinsic references that provide definitions for the term "undercut," *Merriam-Webster* OnLine and *Wikipedia*, The Free Encyclopedia, both of which further support the meaning of the term "undercut" given in the application.

Claims 1 and 21 also recite "a screw member having a first external thread that engages and cooperates with the first internal thread to result in contact between the securing element and the rod to fix the rod in its position in the channel of the receiving part" Claims 1 and 21 further recite that "the first external thread of the securing element is movable into the undercut." Mehdian does not teach these features. Accordingly for these additional reasons, claims 1 and 21 are believed to be patentable over Mehdian. Claims 2, 5-8, 22, 25-27 and 33-40 depend from one of independent claims 1 and 21. Because these claims depend from one of claims 1 and 21 and because they contain additional limitations further distinguishing these claims from the cited art when considered as a whole, these claims are also believed to be patentable.

In view of the above, applicant respectfully requests reconsideration of the application and the allowance of claims 1, 2, 5-8, 21, 22, 25-27 and 33-40.

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By _____

Mark Garscia
Reg. No. 31,953
626/795-9900

MEG/pss
Attachments

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undercut

2 entries found.

1 **undercut (verb)**
2 **undercut (noun)**

Main Entry: **ˈun·der·cut**
Pronunciation: \ˈən-dər-ˌkət\
Function: *noun*
Date: 1859
1 *British* : TENDERLOIN 1
2 : the action or result of cutting away from the underside or lower part of something
3 : a notch cut in the base of a tree before felling to determine the direction of falling and to prevent splitting

Pronunciation Symbols

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MLA Style
"undercut." Merriam-Webster Online Dictionary. 2010.
Merriam-Webster Online. 3 May 2010
<http://www.merriam-webster.com/dictionary/undercut>

APA Style
undercut. (2010). In *Merriam-Webster Online Dictionary*.
Retrieved May 3, 2010, from http://www.merriam-webster.com/dictionary/undercut

Undercut (manufacturing)

From Wikipedia, the free encyclopedia

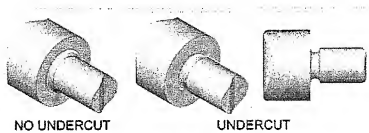
In manufacturing, an **undercut** is a special type of recessed surface. In turning it refers to a recess in a diameter. In machining it refers to a recess in a corner. In molding it refers to a feature that cannot be molded using only a single pull mold. In printed circuit board construction it refers to the portion of the wafer that is etched away under the photoresist.

Contents

- 1 Turning
- 2 Molding
- 3 Machining
- 4 Etching
- 5 Gears
- 6 References
  - 6.1 Bibliography

Turning

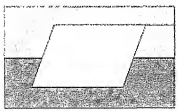
On turned parts an undercut is also known as a *neck*. They are often used at the end of the threaded portion of a shaft or screw to provide clearance for the cutting tool. For proper usage the undercut should be at least 1.5 threads long and the diameter should be at least 0.015 in (0.38 mm) smaller than the minor diameter of the thread.[1]



An example of a turned part with and without an undercut

They are also often used on shafts that have diameter changes so that a mating part can seat against the shoulder. If an undercut is not provided there is always a small radius left behind even if a sharp corner is intended. These type of undercuts are called out on technical drawings by stating the width and either the depth or the diameter of the bottom of the neck.[2]

Molding



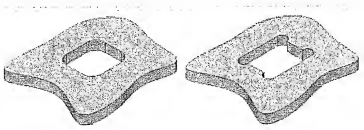
Undercuts on molded parts are features that prevent the part from being directly ejected from the injection molding machine. They are categorized into *internal* and *external* undercuts, where external undercuts are on the exterior of the part and interior undercuts are on the inside of the part. Undercuts can still be molded, but require a *side action* or *side pull*.[3] This is an extra part of the mold that moves separately from the two halves. These can add 15 to 30% to the cost of the mold and also increase the cost of the molded part.[3][4]

If the size of the undercut is small enough and the material is

flexible enough a side action is not always required. In these cases the undercut is stripped or snapped out of the mold. When this is done usually a stripping plate or ring is used instead of stripper pins so that the part is not damaged. This technique can be used on internal and external undercuts.[3]

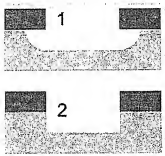
Machining

In machining the corners may be undercut to remove the radius that is usually left by the milling cutter. Examples of this use are linear bearings for square shafts (i.e. racks) and machined hexalobular sockets.



An example of a machining undercut

Etching



1. An isotropic etchant that creates an undercut
2. An anisotropic etchant leaves no undercut

See also: Etching (microfabrication)

Undercuts from etching are somewhat different than the undercuts explained above, because it is a side effect, not an intentional feature. Undercuts from etching can occur from two common causes. The first is over etching, which means the etchant was applied too long. The second is due to an isotropic etchant, which means the etchant etches in all directions equally. To overcome this problem an anisotropic etchant is used.[5]

Gears

Main article: Gear

References

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2. ^ Taylor 2004, p. 194.
3. ^ *a b c* Berins & Society of the Plastics Industry 1991, pp. 325–326.
4. ^ Rosato et al. 2001, pp. 1405–1406.
5. ^ Degarmo, Black & Kohser 2003, p. 897.

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